



# THE INNOVATION CATALYST

## FEBRUARY 2021

### CELEBRATING GODDARD INNOVATORS — KERLEY AWARD WINNERS OF YEARS PAST

If this were a typical year, SPO would be busy planning logistics for the New Technology Reporting Program, an event with a 25-year history that honors Goddard innovators for their contributions to NASA's technology transfer mission. Last year, Goddard upper management, members of Goddard's innovator community, SPO, and Goddard's Office of General Counsel all gathered together in Goddard's Building 3 Auditorium to recognize patent recipients and innovators who go above and beyond to participate in technology transfer.

Though this year looks a little different, SPO is working on a virtual way to acknowledge the incredible work that innovators completed in the 2020 fiscal year. Please check next month's edition of The Innovation Catalyst for more information on that, but in the meantime, here's a look back at innovators we've celebrated in past NTR Programs. These individuals or teams were recipients of the James Kerley Award, a special recognition given to Goddard innovators who demonstrate an extraordinary commitment to Goddard's technology transfer efforts.

#### 2016 – MICHAEL KRAINAK

Now serving NASA in an emeritus position, Michael Krainak has contributed greatly to technology development and commercialization efforts at Goddard through his work in the Laser and Electro-Optics Branch. With more than 20 New Technology Reports submitted throughout the course of his career and several patents to his name, Krainak's work has spanned an assortment of groundbreaking technology areas, including optical communications and photonic integrated chips.

#### 2017 – KEITH GENDREAU

A tiny technology developed by Keith Gendreau to study black holes now has potential as part of a life-saving medical device. The Miniaturized High-Speed Modulated X-ray Source (MXS) has a diverse array of possible applications stretching beyond

astrophysics into the fields of medicine, deep space communication, and more. Gendreau is an astrophysicist in Goddard's X-ray Astrophysics Laboratory, and through a partnership with Massachusetts General Hospital and MIT, researchers have demonstrated an innovative computed tomography (CT) scanner for medical imaging with MXS.

#### 2018 – NITHIN ABRAHAM

Nithin Abraham, a coatings engineer in Goddard's Contamination and Coatings Engineering Branch, is the subject matter expert on Molecular Adsorber Coating (MAC). MAC is at the center of many technology transfer and outreach activities, including a collaboration between Goddard and the Smithsonian National Museum of Natural History to study the use of MAC in reducing contaminants in museum specimens.

#### 2019 – LOTUS COATING TEAM

Mark Hasegawa, Kenneth O'Connor, Dr. Wanda C. Peters, and Sharon Straka form the team that developed a Goddard technology called Lotus Coating. Their work has spanned more than a decade, but through it all, this team has relentlessly advocated for the utility and importance of their technology. Lotus Coating is a lightweight, nano-textured dust mitigation coating that can prevent dust from accumulating on the surfaces of spacecraft, ideal for protecting components and systems.

#### 2020 – COMING SOON!

Who will be the next Goddard innovator to join the ranks of Kerley award winners? Please stay posted for the announcement of the 2020 Kerley Award recipient!

NATIVE AMERICAN HERITAGE REPRESENT  
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# CELEBRATE HISTORY **CULTURE** HERITAGE COMMUNITY

**February** is Black History Month! Goddard's African American Advisory Council kicked off the month with a virtual conversation called "Do You Hear Us?" on Feb. 1. The listening session featured individuals sharing their stories about how injustice, racism and other systemic issues have affected their lives, at home, at work, in school, and in our communities. Look out for more events announced in Dateline, and in the meantime, SPO has compiled a list of resources at Goddard and at the agency level:

**GODDARD'S EQUAL OPPORTUNITY PROGRAMS OFFICE:**

<https://eeo.gsfc.nasa.gov/>

**NASA'S COLLECTION OF STORIES ABOUT BLACK**

**HISTORY MONTH:** <https://www.nasa.gov/subject/13465/black-history-month/>

**CONTACT INFORMATION FOR GODDARD'S AFRICAN AMERICAN ADVISORY COUNCIL:** Sherley Jones, Jr., [sherley.l.jones@nasa.gov](mailto:sherley.l.jones@nasa.gov)

**LEARN MORE ABOUT NASA'S UNITY CAMPAIGN:**

<https://www.nasa.gov/offices/odeo/nasaunity>

# ANNOUNCEMENTS

Upcoming events and important updates for Goddard innovators



## SPO 2020 ACCOMPLISHMENTS REPORT NOW AVAILABLE

You can find [SPO's 2020 Accomplishments Report here](#) and read all about our mostly virtual but still busy year!

## JOIN US FOR COLLABLAB ON MARCH 17TH

SPO's "CollabLab" series premieres in a virtual format on Wednesday, March 17, at 1 pm! The series celebrates Goddard's collaborations and technology transfer success stories, and the debut of the series features the unique collaboration between Nithin Abraham, a Goddard thermal coatings engineer, and Catharine Hawks, an objects conservator from the Smithsonian Institution's National Museum of Natural History (NMNH).

In the Contamination and Coatings Engineering Branch (Code 546), Abraham specializes in the research and development of coatings technology and testing. Abraham and her team took part in an effort to study the efficacy of the patented Molecular Adsorber Coating (MAC), a sprayable porous substance made of zeolite that works to trap and contain contaminants. While the technology was developed in order to protect objects and components of spacecraft, Hawks saw its potential effectiveness in her own field of museum conservation.

Look for the link to the presentation on Dateline, and please contact Valeriya Nakshun, [valeriya.a.nakshun@nasa.gov](mailto:valeriya.a.nakshun@nasa.gov), with any questions about this series or future events!

## COFFEE BREAK CONTINUES IN MARCH

Thank you to everyone who joined us for the first Coffee Break of 2021! Following an NTR- focused presentation by SPO tech managers Eric McGill and Josh Levine, members of SPO answered your questions about submitting NTRs and related software questions. You can catch the next Coffee Break on Thursday, March 25, at 1 pm on Microsoft Teams. As with previous sessions, the first half of the session contains an informative presentation on the topic, while the second half opens the floor to questions from innovators, who can ask questions using the chat feature in Microsoft Teams. Look for announcements of future Coffee Break sessions!

## NASA WEBINAR WILL FEATURE GODDARD-DEVELOPED TECHNOLOGY

Join Goddard innovator Irving Linares as he presents on his invention, the "Active Pointing Monitor for a 2-axis Optical Control System" in a live webinar on Tuesday, Feb. 23, at 2 pm. The webinar is hosted by NASA's Technology Transfer Program and is geared toward potential licensees, but members of the Goddard community are welcome to join in.

Linares' pointing measurement detection and control system monitors the real-time optical axis motions (such as tip and tilt) that affect image quality in aerial platforms. This technology enables correction of image degradation introduced by tip and tilt motions. This system operates in both the visible and IR spectral regions, and can be adapted to different optical systems. It does not require any special manufacturing processes or materials.

To register, [please click here](#).

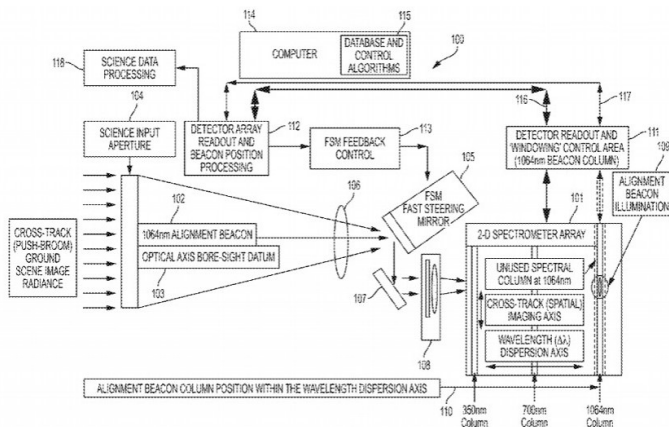
# MAKE SPACE FOR YOUR MENTAL HEALTH: GRATITUDE

The research on gratitude is clear – it's strongly linked to increases in happiness and well-being. It may seem overly simple, but it's true that practicing gratitude and dwelling on gratefulness can help you feel better overall. While it's all too easy to fixate on everything that's going wrong, take a few minutes each day to focus on what's going right.

An [article](#) from the University of California – Berkeley describes how gratitude "unshackles us from toxic emotions" and "has lasting effects on the brain." You can set aside a minute each day to list the things you're grateful for, or you can write them down in a journal so you can go back and read your past reflections. Finally, it never hurts to tell the people in your life that [you are thankful](#) for them.

# TECH TRIVIA TRANSFER

## GUESS THE PATENT DRAWING



**CLUE ONE:** It can be adapted to different optical systems and platforms, such as space, aerial, and ground.

**CLUE TWO:** This technology was invented by Catherine Marx, Irving Linares, Peter Shu, and James Smith.

**CLUE THREE:** The technology improves image quality due to reduced tip and tilt.

### + WANT TO KNOW THE ANSWERS?

[Click here](#) for Tech Transfer Trivia and [here](#) for the Guess The Patent Drawing.

How much do you know about NASA technology transfer? Find out with our monthly quiz!



What does “prior art” mean in the context of pursuing a patent?

A. Prototypes of the claimed invention

B. Pre-existing references or documents that can help determine the novelty and non-obviousness of the claimed invention

C. Patent illustrations that have the same or similar name as the claimed invention

D. Artwork of the claimed invention created prior to submission of the patent application



The Bayh-Dole Act of 1980 fundamentally changed technology transfer in the United States.

A. True

B. False



What is the name for the process that turns an invention into a product that can be manufactured and sold by the private sector?

A. Commercialization

B. Transfiguration

C. Spinification

D. Privatization



# GET TO KNOW SPO **QUENTON BONDS, PH.D.**



**NAME:** Quenton Bonds, Ph.D.

**TITLE:** SBIR/STTR Center Technology Transition Lead (Official)  
aka SBIR/STTR Center Lead

**ROLE AT SPO:** Co-Lead of the NASA Goddard  
SBIR/STTR Program

**TIME AT NASA:** 10 years

**FAVORITE PART OF WORK DAY:** Mornings from  
around 5 am to 9 am

**STAR WARS OR STAR TREK:** Star Trek

**VIDEO GAMES OR BOARD GAMES:** Board games

**BIGGEST PET PEEVE:** It's a tie between clutter  
and clutter-y cables.

**FAVORITE QUOTE OR JOKE:** "Opportunity in Chaos"

**MOST OBSCURE TALENT:** Spoken-word poetry

*Photo courtesy Quenton Bonds*



# TECH MANAGER SPOTLIGHT HOSSIN ABDELDAYEM

## HOW DID YOUR CAREER PATH LEAD YOU TO SPO?

I was working in the resource analysis office on the same floor as SPO. By chance, I had a chat for a few minutes with Nona Cheeks, the chief of SPO at the time. She asked me about my background. A few weeks later, she opened a detail opportunity for me to join the office, which turned into a permanent position after six months.

## WHO DO YOU LOOK UP TO?

I look up to my father. He was a teacher. I learned a lot from him.

## DO YOU HAVE ANY BOOK, MUSIC, OR TV SHOW RECOMMENDATIONS?

I like to read new topics and subjects in physics, including topics that I never learned about in my graduate studies. In addition, I very much enjoy reading self-development books from Tony Robbins, Joseph Murphy, David Schwartz, Claude Bristol and Harold Sherman, Lynne McTaggart, and others.

## WHAT ARE YOU MOST EXCITED TO SHARE REGARDING YOUR CURRENT WORK?

The most exciting part of my job is when I get to review NTRs. I enjoy reading about novel ideas in technology.

## WHAT DO YOU LOOK FORWARD TO AT THE END OF THE WORK DAY?

At the end of the day, I briefly watch the news and then read any of the books I enjoy reading. I just like reading!

## WHAT ARE YOU MOST LOOKING FORWARD TO AFTER THE PANDEMIC IS OVER?

After the pandemic, I am looking forward to going back to my office, where I have left most of the books that I love reading.

## FUN FACT ABOUT YOURSELF:

I love playing with my grandchildren, and they very much enjoy playing with me. This is the fun part of my life!



### CODES:

440, 460, 490, 660 + 670

HOW MANY YEARS THEY'VE  
BEEN AT SPO: 5 years

Photo Credit: NASA/Samantha Kilgore